



Exceptional project jointly completed

Hainan PM 2 – the largest paper machine in the world

In May 2010, Hainan PM 2, with a wire width of 11.8 m and a length of almost 600 m, started up successfully. The huge paper machine hall called for maximum fitness on the part of the erectors and startup personnel. Furthermore, the Hainan climate, with high humidity and temperatures sometimes exceeding 40°C, presented a great challenge for man and machine.

It all began with a letter of intent for three large paper machines, signed by Teguh Ganda Wijaya, CEO of Asia Pulp and Paper (APP). Among Guangxi BM 1 and Hainan PM 1, APP planned Hainan PM 2 – the largest paper machine in the world. On July 6, 2007, the work for the paper machine, which should exceed all present dimensions, was started with the engineering order.

APP places great importance on the reduction of fresh water and the minimal use of virgin fibers in its

papermaking process. The latter is achieved through an increase in the coat application by means of pigments (mainly ground limestone). APP's member of the board, Jensen Ko, commented to the media just a few months ago that of foremost importance to his Group is combining state-of-the-art papermaking with resource conservation. The new PM 2 from Voith Paper will live up to this claim. The fresh water consumption in the overall plant per kilogram of paper produced is around 5 liters, well below the maximum consumption of

10.5 liters stipulated by the Chinese government. Comparable fine paper machines in Europe require, on average, about 8 liters per kilogram of paper produced. Due to the reduced use of fresh water, the quantity of effluent is also reduced. The mill's own water preparation system at APP in Hainan has a capacity of 100,000 m³ per day.

Enormous logistic challenge

An exceptional project like Hainan PM 2 requires good preparation, from



JHPP

Hainan Jinhai Pulp & Paper Co., Ltd. (JHPP) – a subsidiary of APP – is the largest pulp manufacturer in China and among the largest in the world. Since November 1994, JHPP has been producing on an area of 4 km² and employs 1,600 workers. Production covers not only pulp and tissue, but also art paper and brochure paper of the highest level, as well as high-quality packaging, folding boxes and calendars up to a basis weight of 250 g/m².

Technical specifications

Stock preparation

DIP	355 t/day
NBKP	710 t/day
LBKP	1,655 t/day
BCTMP	1,185 t/day
PCC	700 t/day

Paper machine

Uncoated paper weight:	151.1 g/m ²
Finished paper weight:	255.3 g/m ²
Wire width:	11,800 mm
Maximum operating speed:	1,700 m/min
Design speed:	2,000 m/min
Speed of Janus:	1,500 m/min
Speed of VariPlus:	2,500 m/min
Parent roll diameter:	3,500 mm
Maximum production:	4,537 t/day

the beginning. In a two-day seminar, all of the participants met and learned their roles and the purchase order. In addition, rules for joint cooperation were developed. Afterwards the work started at Voith Paper: Layouts were developed, and components with long delivery times had already been ordered. At this machine width, modifications had to be carried out even in the Voith workshops in order to handle the wire width of 11.8 m and the corresponding weights. For the 87 dryers in the paper machine, new pouring holes

were specially made. For the production and erection of the 10 Voith LSC measuring frames – each one more than 14 m long – an additional extra-large hall was rented. Another difficulty was sourcing steel, as it had become scarce in the world marketplace, and capacities had to be reserved early.

Thanks to diverse preparatory work for the other two machines, Guangxi BM 1 and Hainan PM 1, both parties were clear about the demands made on the new machine, and the layouts

were able to be finalized quickly. As APP and Voith Paper have already cooperated successfully and with confidence on other projects, only a few visits to the workshop for approvals were necessary for the implementation.

Due to the enormous size of the machine, logistics also presented a major challenge. Since it is not always easy to transport long machine parts to the seaport, all possible transport routes were investigated in detail. The press



DynaCoat on-line coating aggregates.



One contact for all automation related questions.



Wet end with DuoFormer TQv and Tandem NipcoFlex press.

section alone, with a weight of approximately 500 t, required several low bed trailers and special night transport, as well as police escort, to reach the ship. In 18 partial shipments, approximately 1,500 containers plus 888 large transport units with a total weight of 30,000 t were taken to China. JHPP has its own port facilities in which the shipments of large machinery could be received, whereas the containers were unloaded in the next village, Yangpu, a few minutes away. The construction work and installation of the machine were organized by the customer itself.

“Paper on reel” 11 months after project interruption

Because of the recession in China after the Olympic Games and the global financial crisis, the project had to be interrupted for one year. Therefore, it was necessary to properly register, preserve and store the shipments. A great deal of discipline was called for on the part

of all participants in the processing in order to pack the parts in a strategically favorable way.

After the interruption the installation work began. In just 11 months of installation supervision, sometimes under the most arduous conditions, the goal of “paper at reel” was achieved on May 18, 2010. Since that time, the machine has achieved a maximum speed of 1,415 m/min, with an average of 1,350 m/min. The threading record to-date from the press to the Sirius reel is only 18 minutes – at a machine length of almost 600 m.

Huang Yifeng, project manager and Vice President of JHPP, is very satisfied and confident: “We are pleased to be able to work together with Voith Paper again on this project, the world's largest paper machine. Voith Paper's machine concept ensures the planned production capacity of Hainan PM 2. Right from the beginning, the machine capacity met our

expectations, and we assume the design values of the machine will be reached very soon.”

Location

China

Hainan

Hainan Island is located in the South China Sea separated from the Chinese mainland by the Qiongzhou Strait. The capital in the north of Hainan is Haikou, which can also be reached by air. The paper mill is located about two hours from the airport in an industrial development zone on the north coast of the island.

Contact

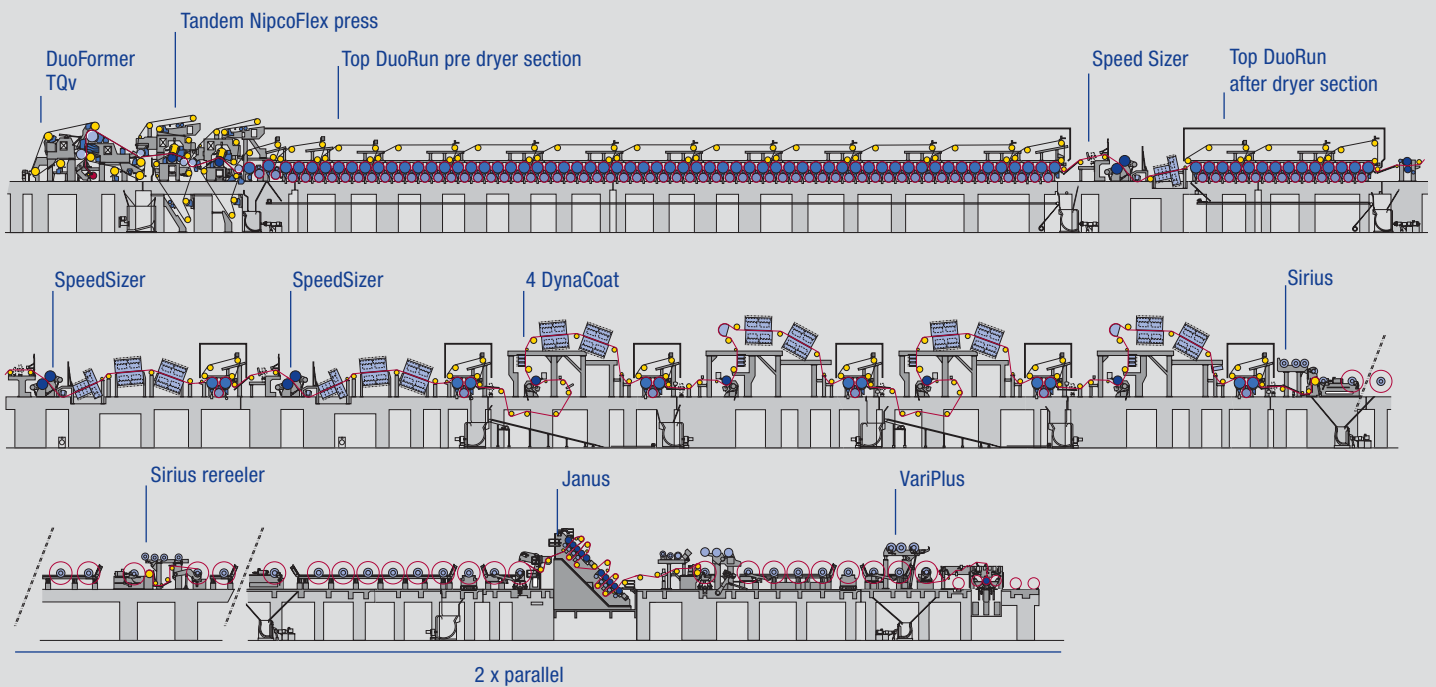
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Parentroll transport to the Janus calender.

Perfect drying capacity due to contactless infrared drying.

Scope of supply Hainan PM 2



Stock preparation system with a total capacity of 3,750 t/day to prepare long fibers, short fibers and BCTMP. Energy efficient and gentle refining for optimal fiber development by utilization of the latest PLURALIS refiner fillings in the TwinFlo refiners.

All roll covers for the production line as well as 50% of the startup clothing and all doctor blades were supplied by Voith Paper. Additionally there is a "Total Roll Management" (TRM) contract for Hainan PM 2 (more about TRM on page 61).

Continuous automation package with some 20,000 I/Os for MCS and DCS, 10 measuring frames with 54 sensors and a monitoring system with 1,400 single measuring points a. s. o.

Complete system solution for contactless drying consisting of three gas-heated IntegratedDryer infrared dryers, four gas-heated InfraAir heating units, 12 MCB-Dryer air dryers and two CB-Turn airturns.